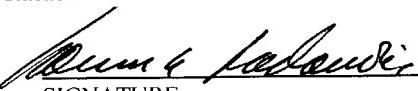


U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE FORM PTO-1390 (Modified) (REV 11-98)		ATTORNEY'S DOCKET NUMBER 66477-012-5
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 09 / 857348
INTERNATIONAL APPLICATION NO PCT/SE99/02255	INTERNATIONAL FILING DATE 2 DECEMBER 1999	PRIORITY DATE CLAIMED 3 DECEMBER 1998
TITLE OF INVENTION ROBOT DEVICE		
APPLICANT(S) FOR DO/EO/US PERSSON, Fredrik; MIKAELSSON, Pierre; HVITTFELDT, Hakan; and LARSSON, Jan		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
<ol style="list-style-type: none"> <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. <input checked="" type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1). <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371 (c) (2)) <ol style="list-style-type: none"> <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). <input type="checkbox"/> has been transmitted by the International Bureau <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). <input type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). <input checked="" type="checkbox"/> A copy of the International Search Report (PCT/ISA/210). <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3)) <ol style="list-style-type: none"> <input checked="" type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). <input type="checkbox"/> have been transmitted by the International Bureau. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. <input type="checkbox"/> have not been made and will not be made. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)). <input checked="" type="checkbox"/> A copy of the International Preliminary Examination Report (PCT/IPEA/409). <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)). 		
Items 13 to 20 below concern document(s) or information included:		
<ol style="list-style-type: none"> <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. <input checked="" type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. <input type="checkbox"/> A substitute specification. <input type="checkbox"/> A change of power of attorney and/or address letter. <input type="checkbox"/> Certificate of Mailing by Express Mail <input checked="" type="checkbox"/> Other items or information: WO 00/32363 		

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 09/857348	INTERNATIONAL APPLICATION NO PCT/SE99/02255	ATTORNEY'S DOCKET NUMBER 66477-012-5																								
21. The following fees are submitted:		CALCULATIONS PTO USE ONLY																								
BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :																										
<input checked="" type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1,000.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but Internation Search Report prepared by the EPO or JPO \$860.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$710.00 <input type="checkbox"/> International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$690.00 <input type="checkbox"/> International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00																										
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Surcharge of \$130.00 for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492 (e)).		<input type="checkbox"/> 20 <input checked="" type="checkbox"/> 30 \$130.00																								
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">CLAIMS</th> <th style="width: 25%;">NUMBER FILED</th> <th style="width: 25%;">NUMBER EXTRA</th> <th style="width: 25%;">RATE</th> </tr> </thead> <tbody> <tr> <td>Total claims</td> <td>11 - 20 =</td> <td>0</td> <td>x \$18.00 \$0.00</td> </tr> <tr> <td>Independent claims</td> <td>1 - 3 =</td> <td>0</td> <td>x \$80.00 \$0.00</td> </tr> <tr> <td colspan="3">Multiple Dependent Claims (check if applicable).</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td colspan="3"></td> <td style="text-align: center;">\$0.00</td> </tr> <tr> <td colspan="3" style="text-align: center;">TOTAL OF ABOVE CALCULATIONS =</td> <td style="text-align: center;">\$1,130.00</td> </tr> </tbody> </table>		CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	Total claims	11 - 20 =	0	x \$18.00 \$0.00	Independent claims	1 - 3 =	0	x \$80.00 \$0.00	Multiple Dependent Claims (check if applicable).			<input type="checkbox"/>				\$0.00	TOTAL OF ABOVE CALCULATIONS =			\$1,130.00	
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<input type="checkbox"/> A check in the amount of _____ to cover the above fees is enclosed. <input checked="" type="checkbox"/> Please charge my Deposit Account No. 04-2223 in the amount of \$1,130.00 to cover the above fees. A duplicate copy of this sheet is enclosed <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 04-2223 A duplicate copy of this sheet is enclosed.																										
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.																										
SEND ALL CORRESPONDENCE TO:																										
LAWRENCE R. RADANOVIC, ESQ.  25269 <small>PATENT TRADEMARK OFFICE</small>																										
 SIGNATURE																										
LAWRENCE R. RADANOVIC NAME 23,077 REGISTRATION NUMBER 4 JUNE 2001 DATE																										

09/857348
JC18 Rec'd PCT/PTO 04 JUN 2001

66477-012-5

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:) PATENT
PERSSON, Fredrik et al.)
Serial No.: based on PCT/SE99/02255) Examiner:
Filed: June 4, 2001) ATTN: PCT

Robot Device

PRELIMINARY AMENDMENT

June 4, 2001

Box PCT
Assistant Director for Patents
Washington, D.C. 20231

Sirs:

Before examination, please amend the above-identified application as follows:

IN THE CLAIMS:

Please amend claims 1 to 11 as follows:

1. (Amended) Robot including at least one linkage device in which pull rods are arranged in a multi-joint system where the joints include three-axle ball and socket joints, wherein a bearing means is fixed so that the bearing means does not rotate in a housing in the socket of a joint, the housing including a surface against which the bearing means abuts and the surface being provided with friction-increasing means to increase friction between the surface and the bearing means.

2. (Amended) The robot according to claim 1, wherein the bearing means comprises an annular bearing means.

3. (Amended) The robot according to claim 1, wherein the friction-increasing means is structured as to penetrate bearing means effecting a permanent deformation.

4. (Amended) The robot according to claim 1, wherein the friction-increasing means comprise a plurality of grooves.

5. (Amended) The robot according to claim 1, wherein the bearing means abuts with the surface and is pressed thereagainst to fit tightly.

6. (Amended) The robot according to claim 4, wherein the grooves are oriented primarily parallel with the central axis of the bearing means.

7. (Amended) The robot according to claim 1, wherein the bearing means is comprised of a polymer material.

8. (Amended) The robot according to claim 1, wherein the robot comprises a delta robot.

Cancel claims 9, 10 and 11.

Add new claims 12, 13, and 14.

--14. A method for eliminating risk of play in a three-axle ball and socket joint in an industrial robot, comprising the steps of providing at least one linkage device for the robot, the device having pull rods arranged in a multi-joint system where the joints each comprise the three-axle ball and socket joint, providing a socket of the joint with a housing to accommodate a bearing means, providing the housing with a surface against which the bearing means abuts, fixing the bearing means such that the bearing means does not rotate in the housing, the fixing step being effected by providing the surface with friction-increasing means, and engaging the friction-increasing means with the bearing means when the bearing means is positioned in place.

13. The method according to claim 12, comprising the further step of pressing the bearing means to fit tightly in place in the housing of the joint socket.

14. The method according to claim 12, comprising the further step of deforming the material of the bearing means by permanent deformation by the friction-increasing means when the bearing means is placed in position.--

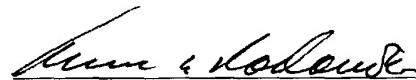
R E M A R K S

Claims 1 to 8 have been amended to more closely conform the application to U.S. standards. Claims 9, 10, and 11 have been cancelled. Also new claims 12, 13 and 13 have been added. No new matter has been introduced, and all multiple dependent claims have been cancelled.

Attached is a marked-up version of the changes made to the claims by the current Preliminary Amendment.

Entry is believed in order.

Respectfully submitted,



Lawrence R. Radanovic, Reg. No. 23,077

Attorney for Applicants

ID38320

1111111111111111
“25269”
“Patent, Trademark Office”

Versions with Markings to Claims to Show Changes

1. (Amended) Robot including at least one linkage device in which pull rods are arranged in a multi-joint system where the joints include three-axle ball and socket joints, wherein [characterized in that] a bearing means [(3)] is fixed so that [it] the bearing means does not rotate in a housing [(2)] in the socket of a joint [(1)], the [where] housing including [(2) includes] a surface [(4)] against which the bearing means [(3)] abuts and [that] the surface being provided [(4) is designed] with friction-increasing means to increase friction between the surface and the bearing means [(5)].
2. (Amended) The robot [Device] according to claim 1, wherein [characterized in that] the bearing means [(3)] comprises an annular bearing means [(3)].
3. (Amended) The robot [Device] according to claim 1, wherein [claims 1-2 characterized in that] the friction-increasing means is structured as to [(5)] penetrate [its material by a permanent deformation of the] bearing means [(3)] effecting a permanent deformation.
4. (Amended) The robot [Device] according to claim 1, wherein [claims 1-3 characterized in that] the friction-increasing means [(5) are designed in the form] comprise a plurality of grooves [(5)].

5. (Amended) The robot [Device] according to claim 1, wherein the [claim 1, characterized in that] bearing means [(3)] abuts with the surface [(4)] and is pressed thereagainst to fit tightly.

6. (Amended) The robot [Device] according to claim 4, wherein the [1 characterized in that] grooves [(5)] are oriented primarily parallel with the central axis [(A)] of the bearing means.

7. (Amended) The robot [Device] according to claim 1, wherein [claims 1-6 characterized in that] the bearing means is [made] comprised of a polymer material.

8. (Amended) The robot [Device] according to claim 1, wherein [any of claims 1-7 characterized in that] the robot [is] comprises a delta robot.

Cancel claims 9, 10 and 11.

Add new claims 12, 13, and 14.

--12. A method for eliminating risk of play in a three-axle ball and socket joint in an industrial robot, comprising the steps of providing at least one linkage device for the robot, the device having pull rods arranged in a multi-joint system where the joints each comprise the three-axle ball and socket joint, providing a socket of the joint with a housing to accommodate a bearing means, providing the housing with a

surface against which the bearing means abuts, fixing the bearing means such that the bearing means does not rotate in the housing, the fixing step being effected by providing the surface with friction-increasing means, and engaging the friction increasing means with the bearing means when the bearing means is positioned in place.

13. The method according to claim 12, comprising the further step of pressing the bearing means to fit tightly in place in the housing of the joint socket.

14. The method according to claim 12, comprising the further step of deforming the material of the bearing means by permanent deformation by the friction-increasing means when the bearing means is placed in position.--

ROBOT DEVICE

5 TECHNICAL FIELD

The present invention relates to a device, use and method to eliminate the risk of play in a three-axle joint in a robot.

10 PRIOR ART

In a delta robot, a positioning of a moveable element in relation to a fixed element takes place (Fig. 5). Three driving means each drive their own link device arranged between the fixed and the moveable elements. The link devices can include rods arranged in multi-joint systems where the joints can comprise ball and socket joints.

The American document US,A, 4 976 582 shows, among other things, a delta robot with two parallel links 5a and 5b joined to pivot with ball and socket joints 26a, 26b, 27a, and 27b (Fig. 5). The joint sockets are attached to the ends of the links.

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The ball and socket joints according to the invention are designed with replaceable bearing means that minimise friction in the joints. The bearing means has a socket-shaped inner surface and is manufactured in self-lubricating polymer material. The bearing means is arranged in a seat in the joint socket. During the operation of the robot, rotational movements take place in the ball and socket joints and directional movements also occur.

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Problems arise when the bearing means follows the rotational movement, i.e. follows the rotation movement of the ball of the joint. In this situation, link movements take place at the same radii take place at the joint socket at each stroke of the linkage device, whereby wear occurs repeatedly at the same location. An uneven wear occurs in the joint, which causes play in the joint and thus increased friction in the joint. The reason that the bearing

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means rotates with the ball joint is that the material in the bearing means is too soft to ensure a good tight fit in the seat.

A robot including a joint / joints with play does not work at a smooth pace but is disturbed
5 in its movement as the joints bind and the movements become imprecise. The balance of moments in the construction is disturbed, which drastically reduces the working life of the robot. The cycle time increases and the robot cannot meet its performance requirements.

In the operation of robots, the need thus arises to firmly fix a bearing means in a seat in a
10 joint socket. This need cannot be met by the delta robot in the American document.

SUMMARY OF THE INVENTION

When designing delta robots, the objective according to the invention is to achieve a
15 design with a low weight that can handle a stroke time of 0.5 seconds. To achieve robots that are this fast, the joint must be designed so that friction is minimised.

A certain wear on the bearing means in a joint is unavoidable. An even wear of a self-lubricating bearing means gives an even lubrication of and a smooth movement in the
20 joint. When the wear is even, no unwanted play occurs and the robot has a smooth, rapid operation.

The object of the present invention is thus to achieve a robot including a means with which one increases the friction between bearing means and socket in a ball and socket joint. An
25 additional object of the invention is to design the device so that it allows an easy replacement of bearing means according to need.

DESCRIPTION OF THE DRAWING

30 The invention will be explained in greater detail by describing an example of an embodiment with reference to the enclosed drawings, where;

Fig. 1 shows a socket of a joint according to the invention,

Fig. 2 shows a joint socket according to the invention,

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Fig. 3 shows a joint socket according to the invention arranged with grooves,

Fig. 4 shows an alternative design with a socket-shaped seat and bearing means,

10 Fig. 5 shows a delta robot.

DESCRIPTION OF EMBODIMENTS

A three-axle ball and socket joint in a robot (Fig. 5) comprises a joint socket and a joint ball. The joint socket 1 encloses the ball of the joint (not shown) with a space that comprises approximately a half of a sphere or less (Fig. 1). A housing 2 shaped to accommodate a bearing means 3 is located within socket 1.

The word bearing here relates to either one annular bearing, several annular bearings or the bearing divided into sections in a way suitable for the purpose. In the embodiment 15 described below, the bearing means comprises one annular bearing means.

The housing 2 includes a surface 4 against which the annular bearing means 3 is pressed to fit tightly (Fig. 2). Annular bearing means 3 is manufactured from a polymer material and is pressed to fit tightly in place with the aid of a tool in the traditional manner. To increase 20 the friction between surface 4 of the joint socket and the annular bearing means 3, friction-increasing means 5 are arranged on the surface 4. The friction-increasing means can be designed as, for example, a wave structure in the form of grooves 5' (Fig. 3). The orientation of the grooves 5' in a longitudinal direction forms the angle (α) with the centre axis (A) of the annular bearing means. Grooves 5' are preferably parallel with the centre axis (A). In addition, the grooves should have sharply pointed tops to secure the friction. 25 When the annular bearing means 3 is arranged in the housing 2, the friction-increasing 30 means 5 are arranged on the surface 4 of the housing 2.

means 5 achieve a permanent deformation of the annular bearing means 3 by penetrating its material.

An alternative design of the invention is to make the envelope surface of the bearing

5 means compatible to the friction-increasing means 5 arranged on the surface of the joint socket 4. In the embodiment described above with the friction-increasing means 5 in the form of grooves 5', the bearing means 3 can thus be alternatively designed with grooves that are compatible with the surface of the housing.

10 A further alternative design of the invention is to design the housing of the joint socket socket-shaped and provided with grooves. Then the bearing means is designed with a socket-shaped outer surface and is placed without being pressed to fit tightly in the housing of the joint socket. In this design of the invention, it is the spring force that holds the ball and socket joint together that also fixes the bearing means firmly in place.

15 -----

CLAIMS

1. Robot including at least one linkage device in which pull rods are arranged in a multi-joint system where the joints include three-axle ball and socket joints characterised in that a bearing means (3) is fixed so that it does not rotate in a housing (2) in the socket of a joint (1), where housing (2) includes a surface (4) against which the bearing means (3) abuts and that the surface (4) is designed with friction-increasing means (5).
2. Device according to claim 1 characterised in that the bearing means (3) comprises an annular bearing means (3').
3. Device according to claims 1-2 characterised in that the friction-increasing means (5) penetrate its material by a permanent deformation of the bearing means (3).
- 15 4. Device according to claims 1-3 characterised in that the friction-increasing means (5) are designed in the form of grooves (5').
5. Device according to claims 1-4 characterised in that bearing means (3) abuts with surface (4) and is pressed to fit tightly.
- 20 6. Device according to claim 4 characterised in that grooves (5') are oriented primarily parallel with the central axis (A) of the bearing means.
7. Device according to claims 1-6 characterised in that the bearing means is made of a polymer material.
- 25 8. Device according to any of claims 1-7 characterised in that the robot is a delta robot.
- 30 9. Method for a robot including at least one linkage device in which pull rods are arranged in a multi-joint system where the joints include three-axle ball and socket joints and where a socket (1) of a joint is provided with a housing (2) to accommodate a bearing means (3), where the housing (2) is provided with a surface (4) against which the bearing means abuts characterised in that bearing means (3) is fixed so that it does not

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rotate in housing (2) by providing surface (4) with friction-increasing means (5) that are brought to engage with bearing means (3) when bearing means (3) is positioned in place.

10. Method according to claim 9 characterised in that the bearing means (3) is
5 pressed to fit tightly in place in the housing (2) of the joint socket (1).

11. Method according to claim 9 characterised in that friction-increasing means (5)
deform the material of the bearing means by permanent deformation when bearing means
(3) is placed in position.

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International Bureau

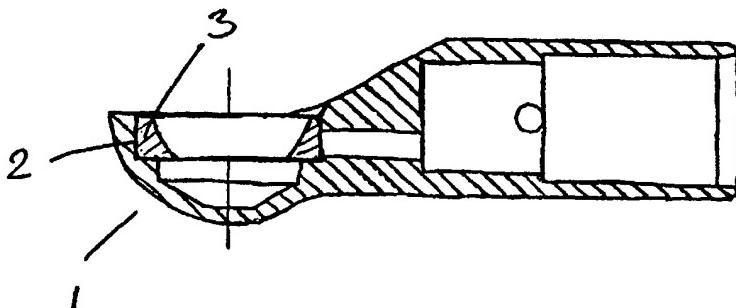


INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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B25J 17/02, F16C 11/06		(43) International Publication Date:	8 June 2000 (08.06.00)

(21) International Application Number:	PCT/SE99/02255	(81) Designated States: AE, AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), DM, EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
(22) International Filing Date:	2 December 1999 (02.12.99)	
(30) Priority Data:	9804215-3 3 December 1998 (03.12.98) SE	
(71) Applicant (for all designated States except US):	ABB AB [SE/SE]; S-721 83 Västerås (SE).	
(72) Inventors; and		
(75) Inventors/Applicants (for US only):	PERSSON, Fredrik [SE/SE]; Markörgatan 10 A, S-723 38 Västerås (SE). MIKAELSSON, Pierre [SE/SE]; Haga Parkgatan 3D, S-723 36 Västerås (SE). HVITTFELDT, Håkan [SE/SE]; Brunnbygatan 64, S-722 23 Västerås (SE). LARSSON, Jan [SE/SE]; Adolf Zethelius gata 11, S-724 78 Västerås (SE).	
(74) Agents:	URBAN, Petré et al.; AB Stockholms Patentbyrå, Zacco & Bruhn, P.O. Box 23101, S-104 35 Stockholm (SE).	

(54) Title: ROBOT DEVICE



(57) Abstract

Device for fixing a bearing means firmly in a three-axle ball and socket joint arranged in a robot. The bearing means is arranged in a housing (2) on the joint socket (1) and the housing (2) includes surface (4) against which the bearing means abuts. Surface (4) is designed with friction-increasing means (5) that grip the bearing means and hold it.

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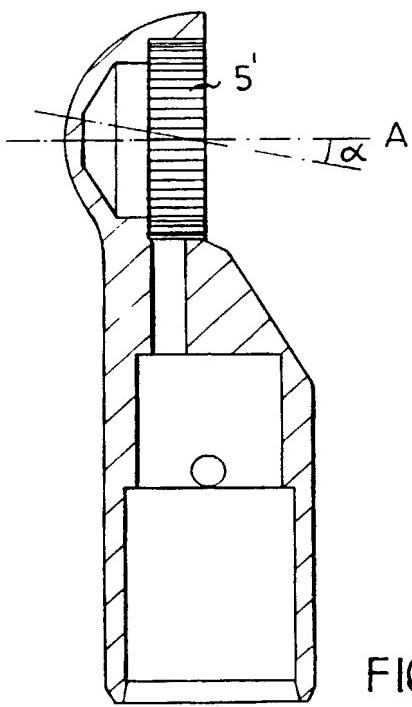
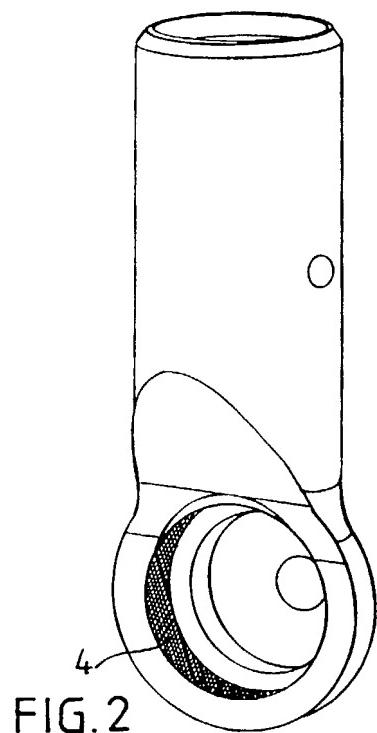
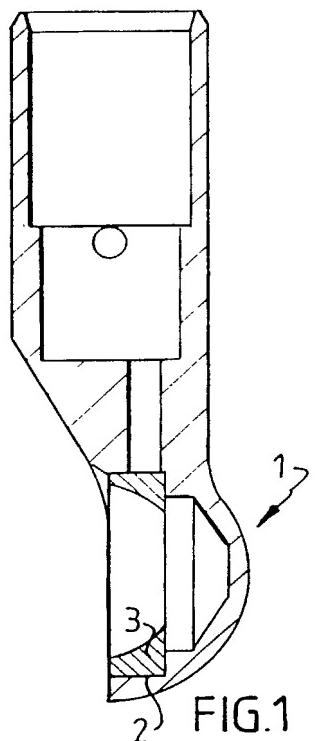
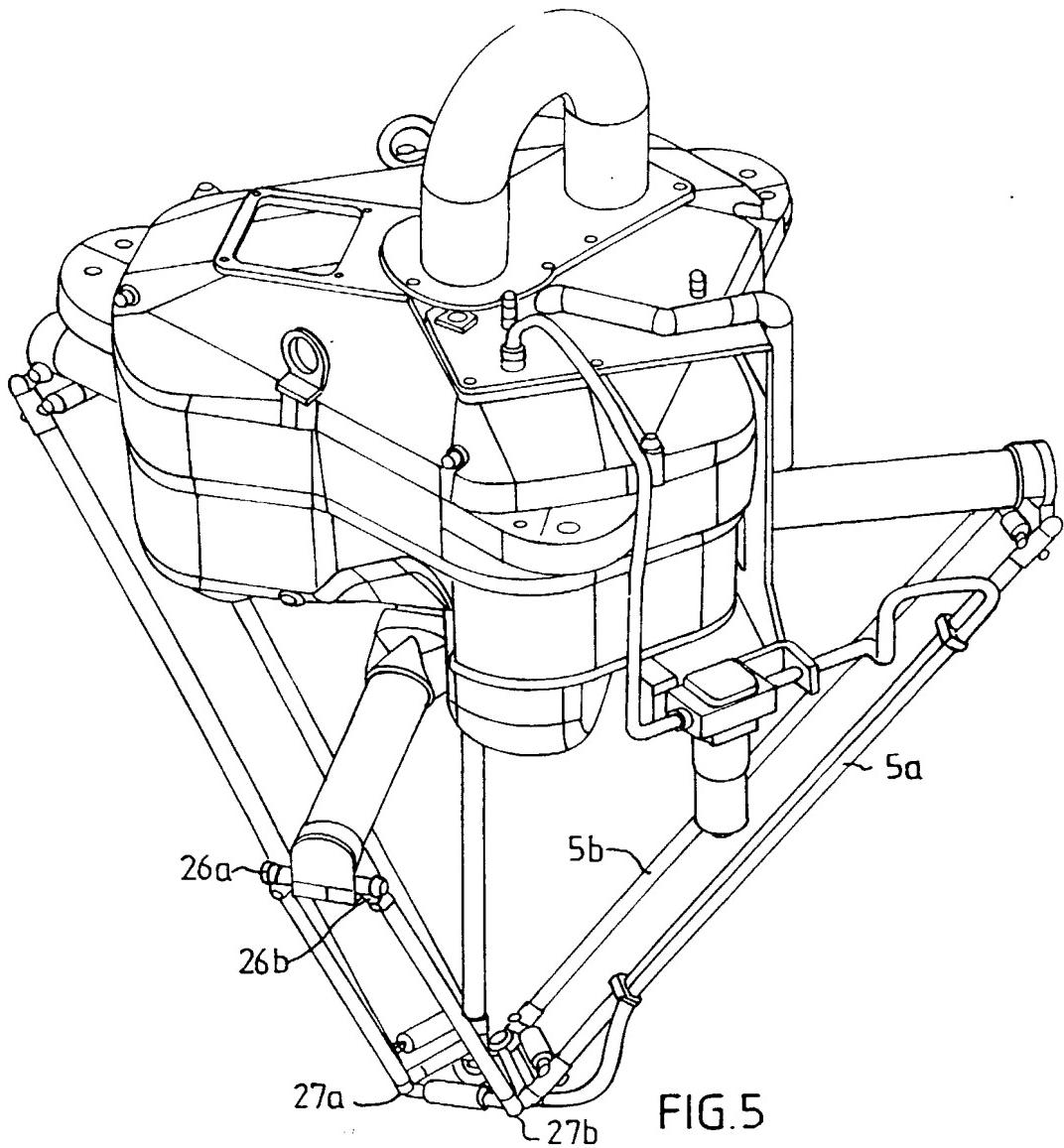
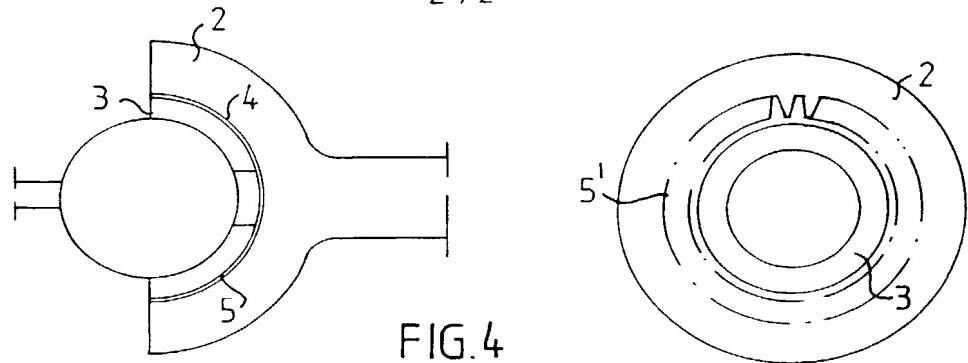


FIG. 3

WO 00/32363

2 / 2



**COMBINED DECLARATION AND POWER OF ATTORNEY
FOR UTILITY PATENT APPLICATION (Includes PCT)**

Attorney Docket No.
66477-012-5

As a below named inventor, We hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; that

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural inventors are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

ROBOT DEVICE

the specification of which (check one): is attached hereto.

was filed on _____ as Application Serial No. _____ and was amended on _____.

was filed on 2 December 1999 as PCT international application No. PCT/SE99/02255 and was amended under PCT Article 19 on _____ (if applicable).

We hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

We acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

We do not know and do not believe the claimed invention was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months prior to this application.

We hereby claim foreign priority benefits under Title 35, United States Code §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application(s) on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed
9804215-3 (Number)	Sweden (Country)	03 / 12 / 1998 Day/Month/Year Filed	<input checked="" type="checkbox"/> [] Yes No
_____ (Number)	_____ (Country)	_____ Day/Month/Year Filed	<input type="checkbox"/> [] Yes No

We hereby claim the benefit under Title 35, United States Code, §119 (e) of any United States provisional application(s) listed below:

Application No.	Day/Month/Year Filed	Application No.	Day/Month/Year Filed
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Attorney Docket No. 66477-012-5

We hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial No.	Filing Date	Status (patented, pending, abandoned)
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We hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: Lawrence R. Radanovic, Reg. No. 23,077; Richard H. Tushin, Reg. No. 27,297; Donald N. Huff, Reg. No. 27,561; John P. DeLuca, Reg. No. 25,505; Charles Rutherford, Reg. No. 18,933; Robert L. Kelly, Reg. No. 31,843; Kevin M. Hinman, Reg. No. 35,193; Ernest E. Helms, Reg. No. 29,721; William F. Kolakowski, Reg. No. 41,908; Sandra S. Snapp, Reg. No. 41,444; and William A. Bonk, III, Reg. No. 40,251, all of Dykema Gossett, P.L.L.C. Direct all telephone calls to telephone no. (202) 522-8600 and faxes to (202) 522-8669.

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We hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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